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Montana Progress

Watershed Projects River Basin Surveys



SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE

DECEMBER
1972

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COVER PHOTO. Cedar Creek multipurpose reservoir, Columbia Falls,
Flathead County, Montana

Small Watershed Development

Soil, water, and pollution problems are strongly related. They affect whole communities as well as individuals. The Watershed Protection and Flood Prevention Act (Public Law 566), enacted in 1954, has helped several Montana communities to make better use of their water and protect their land resources. The watershed law contained many ideas for improving the environment--ideas which are consistent with the environmental policy expressed in the National Environmental Policy Act of 1970. People in Montana, like those in other areas, have demonstrated that small watershed projects can improve the quality of life for both rural and urban people.

Thanks to watershed development, Montana communities have reduced soil erosion and excessive runoff, stopped destructive floods, reduced pollution, provided more efficient irrigation, supplied water for irrigation and municipal and industrial needs, enhanced fish and wildlife, and developed new recreation. Watershed projects are "tailor-made" for the community and consider both human needs and local resources. The local people who initiate and carry out these projects see to it that all interests are considered.

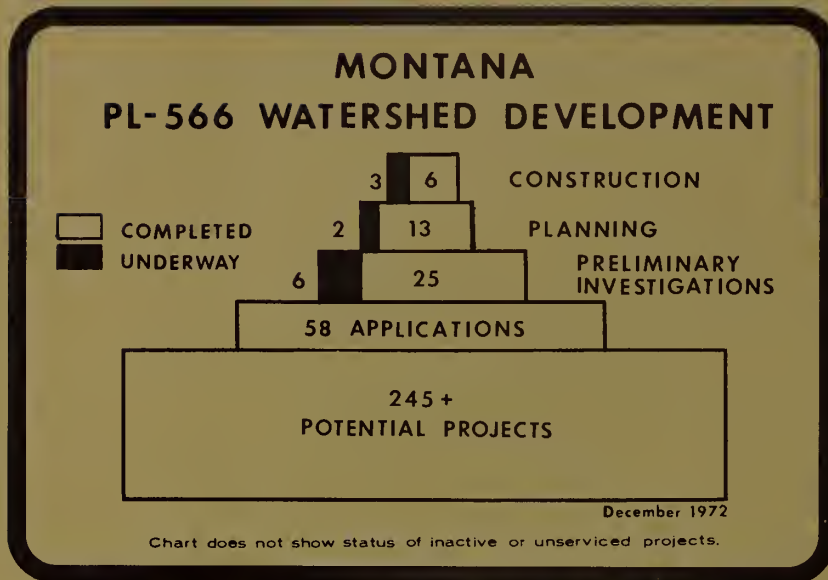
The Soil Conservation Service has the responsibility for administering the PL-566 program and is vitally interested in enhancing man's environment and conserving water and soil. Watershed planning brings together the experience and talents of many specialists. This helps to insure that needs and concerns of all people are recognized.

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CATALOGING PREP

Watershed development under Public Law 566 is closely coordinated with state and other federal agencies in order that planned projects will be compatible with local, state, and national goals.



The above chart illustrates watershed status in Montana. The Montana Soil and Water Conservation Needs Inventory shows a potential of about 245 watersheds needing project action. To date, the State has approved 58 applications from local groups for assistance under Public Law 566. Preliminary investigations have been completed for 25 projects. Of the 13 watershed plans completed, six projects have been constructed and three projects are under construction. Additional information is presented in Table 1 and the watershed status map at the close of this report.

Impact: Environmental – economic

The small watershed program has had a positive impact on Montana's environment. Here are a few examples of contributions to improved environmental quality:



SCS PHOTO

ORC-227-13

The City of Shelby's multipurpose watershed project is providing good trout fishing, overnight camping facilities for 27 families, and flood prevention for the north side of the city.



SCS PHOTO MT-P598-10

Settling basins were used during the building of the Cedar Creek dam to trap sediment and prevent downstream pollution.

■■■■■■■■■■■■■■■■■■■■ DURING AND AFTER CONSTRUCTION ■■■■■■■■■■■■■■■■■■■■

The west side of the Continental Divide had a lot of high water during the spring of 1972, but the people in Columbia Falls had dry streets and basements. This was a distinct contrast to past years of high runoff. Recently completed, the Cedar Creek dam and floodway captured the floodwaters and diverted them into the Flathead River. The floodway, which was designed to carry about 100 cubic feet per second, operated at full capacity for several days. Below the dam, the natural channel of Cedar Creek was carrying about 30 cubic feet per second, well within its banks, and causing no problem as it entered Columbia Falls. Only a small portion of the 1,600 acre-feet of capacity reserved for floodwater storage was needed to control flooding during the high runoff of 1972. In addition to floodwater detention, this multi-purpose reservoir stores 400 acre-feet of water for future municipal and industrial uses. Additional information on this recently constructed project is shown on page 12.



PHOTO BY MEL RUDER

Contaminated floodwater that has passed through septic disposal fields, as shown above, has now been eliminated.



SCS PHOTO

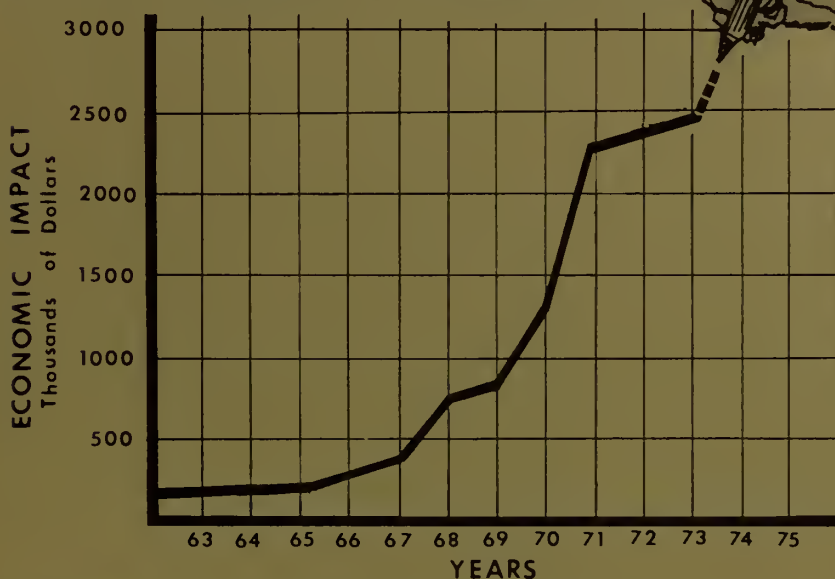
ORC-26-11

In Granite County some 5,000 acre-feet of floodwaters from Lower Willow Creek remained in the irrigation reservoir near Hall after the 1972 spring runoff. Water stored in this reservoir--the first irrigation project completed under Public Law 566--provides a dependable late season supply for farm land below the dam.

Management of this water, based on SCS snow survey information, prevented the kind of downstream flood damages that occurred in high runoff years before the dam was built. This reservoir has been operational since 1961.

WATERSHEDS HELP ECONOMIES GROW !

ACCUMULATIVE ANNUAL ECONOMIC IMPACT FROM PL-566 WATERSHED CONSTRUCTION



Watershed projects have a continuing economic impact on the local area. The economic impact of the PL-566 projects completed and under construction to date in Montana is estimated at \$2.4 million a year. This impact will continue throughout the life of these projects. Each new project adds to the total.

Planning Activities

Fiscal years 1972-73

Watershed and river basin planning is just part of the Soil Conservation Service's responsibility. However, watershed planning progress in Montana has been directly related to the support furnished by state appropriations. State funds support field investigations, engineering surveys, planning studies, work plan development, environmental statements, archeological surveys, reports to legislators and government officials, watershed construction, and such related activities as flood hazard analyses.

Following is a synopsis of watershed planning and river basin activities during the 1972 and 1973 fiscal biennium:

New Applications

An application for assistance on Clear Creek, near Glendive, was approved by the state for the purposes of storing and managing irrigation water and providing recreation.

An application on Cottonwood Creek, near Deer Lodge, has been submitted to the Montana Department of Natural Resources and Conservation for approval. This will be the fifty-ninth application to be approved. Preliminary engineering field data were collected in July 1972.

Field Examinations and Preliminary Investigations

WILLOW CREEK (VALLEY COUNTY)

Intensive preliminary investigations and analyses show this project to be feasible. A report of findings was prepared. The reservoir would provide additional irrigation water and improve agricultural water management. Water for recreational and fish and wildlife uses was also included.

ALKALI CREEK (YELLOWSTONE COUNTY)

Basic data are being developed for a preliminary investigation report.

SAND COULEE (CASCADE COUNTY)

A preliminary investigation report and flood hazard analysis report are being developed.

CLEAR CREEK

(DAWSON-McCONE-PRAIRIE COUNTIES)

Basic data are being gathered in preparation for a preliminary investigation report.

Work Plan Supplements and Revisions

Supplements were prepared for watershed work plans on Big Spring Creek, Beaver Creek, and Newlan Creek. These incorporate provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970--Public Law 91-646. The Carbon Hill Watershed work plan was rewritten to meet these new criteria and incorporate a change in interest rate. This work plan is now in the Office of Management and Budget awaiting transmittal to congressional committees for approval.

New Work Plan Requirements

The National Environmental Policy Act of 1970 requires new watershed work plans to contain more detailed information about the watershed environment and environmental effects of a project. A separate environmental impact statement must be prepared and made available to the public.

The Rural Development Act, recently signed by President Nixon, includes several important amendments to PL-566. These include: cost sharing for water quality management; cost sharing of up to 50 percent for municipal and industrial water; use of other federal funds for land rights; and long-term contracts to establish land treatment measures. These changes have updated PL-566 as a tool to meet environmental improvement needs.

The impact of these acts and the new opportunities they provide will be reflected in future watershed work plans.

Work Plan Development

Watershed work plan activities are currently concentrated on the following projects:

BAKER LAKE (FALLON COUNTY)

Reviewers' comments on the first work plan draft and the environmental statement were received in June 1972. Work plan and environmental statement were rewritten to incorporate changes suggested and to assure conformity with new environmental statement guidelines. The sponsors have approved the work plan and signed the work plan agreement. Remaining reviews should be completed and the project ready for operations by July 1973.

CITY OF BROWNING (GLACIER COUNTY)

Intensive planning efforts and meetings with local sponsors have been in progress during the past two years.

A first draft of the watershed work plan and environmental statement is nearly complete.

BOULDER RIVER (JEFFERSON COUNTY)

Preliminary investigations were conducted in the mid-1960's. Key land rights issues have now been resolved.

Basic data are being developed for a watershed work plan and environmental statement. However, major planning will begin early in 1973.

WHITEFISH LAKE (FLATHEAD COUNTY)

A request for planning authorization has been submitted to the Administrator of the Soil Conservation Service. Detailed planning studies are scheduled to begin in May or June 1973.

Flood Hazard Studies

The Soil Conservation Service, under authority of PL-566, is authorized to assist state and local governments, upon request, with flood hazard studies.

The purpose of these studies is two-fold: (1) to eliminate or minimize the loss of life, personal suffering, and physical hardships which are immediate consequences of serious floods; and (2) to achieve optimum beneficial use of floodplains for both public and private benefits.

Flood hazard reports define floodprone areas and establish 50- and 100-year flood lines. They can be useful for local and state planners in analyzing alternatives for management and protection of floodplain areas. The reports can also be used by local and state agencies to help establish and carry out land use plans and regulations.

Two flood hazard surveys were initiated in this biennium.

EAST GALLATIN (BOZEMAN)

Engineering surveys of floodplain topography were begun in September 1971. A first draft report was distributed for review in June 1972. The study was sponsored by the State of Montana, City of Bozeman, Gallatin County, and Gallatin Conservation District. Final reports were made available to the sponsors in September 1972.

SAND COULEE (GREAT FALLS)

A flood hazard study is under way in conjunction with preliminary watershed investigations. This report is expected to be completed by June 1973.

River Basin Surveys

TYPE 4 SURVEYS

Water and land resources are being studied under Type 4 river basin studies. These are conducted in major river basins, with one or more federal agencies cooperating with the state and each other.

The WIND-BIGHORN-CLARKS FORK RIVER BASIN survey in southcentral Montana, an extension of the Wind-Bighorn Type 4 survey started in Wyoming, is nearing completion.

The CLARK FORK OF THE COLUMBIA RIVER BASIN Type 4 survey includes all drainages in western Montana with the exception of the Kootenai River system. This survey is scheduled for completion in 1976.

These Type 4 surveys are designed to provide USDA input to the State Water Plan being prepared by the Water Resources Division of the Montana Department of Natural Resources and Conservation. These studies are also designed to identify feasible Public Law 566 watershed projects.

COLUMBIA-NORTH PACIFIC STUDY

The U. S. Department of Agriculture is a member of the Columbia-North Pacific River Basin Commission which is charged with preparing a plan for the Columbia-North Pacific Region. Alternative plans for resource use in the region are being prepared, utilizing Type 4 river basin survey data for the Clark Fork of the Columbia River Basin.

Western United States Water Plan

The U. S. Department of Agriculture participates in the development of the Western U. S. Water Plan under leadership of the Bureau of Reclamation. The Soil Conservation Service has responsibility, in cooperation with the Forest Service and the Economic Research Service, for providing basic water and land resource data. These are needed to prepare alternative plans for using and managing resources to meet future needs in the 11 western states.

Much of the data for this study will come from Type 4 river basin surveys, previous Type 1 surveys, Conservation Needs Inventories, and small watershed PL-566 investigations.

The Western U. S. Water Plan will be a composite of alternative plans prepared for each state.

Construction Activities

Fiscal Years 1972-73

✓ TWO PROJECTS COMPLETED

During the 1972-1973 fiscal biennium, construction was completed on Cedar Creek and Sidney Water Users Association watershed projects. These projects represent an investment of \$2,742,400 in water and land resource development in Montana.

✓ TWO PROJECTS UNDER CONSTRUCTION

Construction contracts and work agreements were executed for portions of the Big Spring Creek and Beaver Creek watershed projects. These contracts and agreements totaled \$3,509,774.

✓ ONE PROJECT UNDER WAY

Engineering surveys and designs are under way for the Newlan Creek project. These services, plus construction inspection and other help needed to install PL-566 watershed projects, are provided by the Soil Conservation Service.

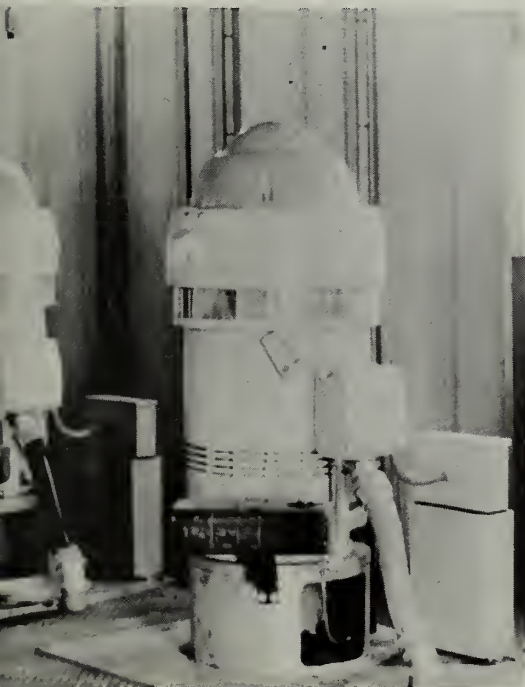
SIDNEY WATER USERS ASSOCIATION

THE OLD GIVES WAY TO THE NEW

New pumping plants and an improved canal system now provide a dependable irrigation water supply for about 5,100 acres. Two floodwater retarding structures (not shown) protect the project area.



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MONTANA'S NEWEST WATERSHED DAM

CEDAR CREEK WATERSHED



MT-P873-4

This multipurpose reservoir provides flood prevention capacity and municipal and industrial water. Photo shows diversion canal below the dam and emergency spillway on right. The reservoir was operational in 1971.



CEDAR CREEK WATERSHED PROJECT

MULTIPLE PURPOSE DAM	400 AC FT
WATER SUPPLY	1000 AC FT
FLOOD WATER STORAGE	100 AC FT
WATER CONTROL	2100 AC FT
WATER CONTROL AREA	50 ACRES
WATER CONTROL	3800 ACRES
WATER CONTROL	50 FEET
WATER CONTROL	100,700 CU YD
WATER CONTROL	2 1/2 MILES
WATER CONTROL	

BUILT UNDER THE WATERSHED PROTECTION AND
FLOOD PREVENTION ACT
BY
CITY OF COLUMBIA FALLS
CO-SPONSORED BY FLATHEAD COUNTY
AND
FLATHEAD CONSERVATION DISTRICT
WITH THE ASSISTANCE OF
SOIL CONSERVATION SERVICE
OF THE
U. S. DEPARTMENT OF AGRICULTURE
1971

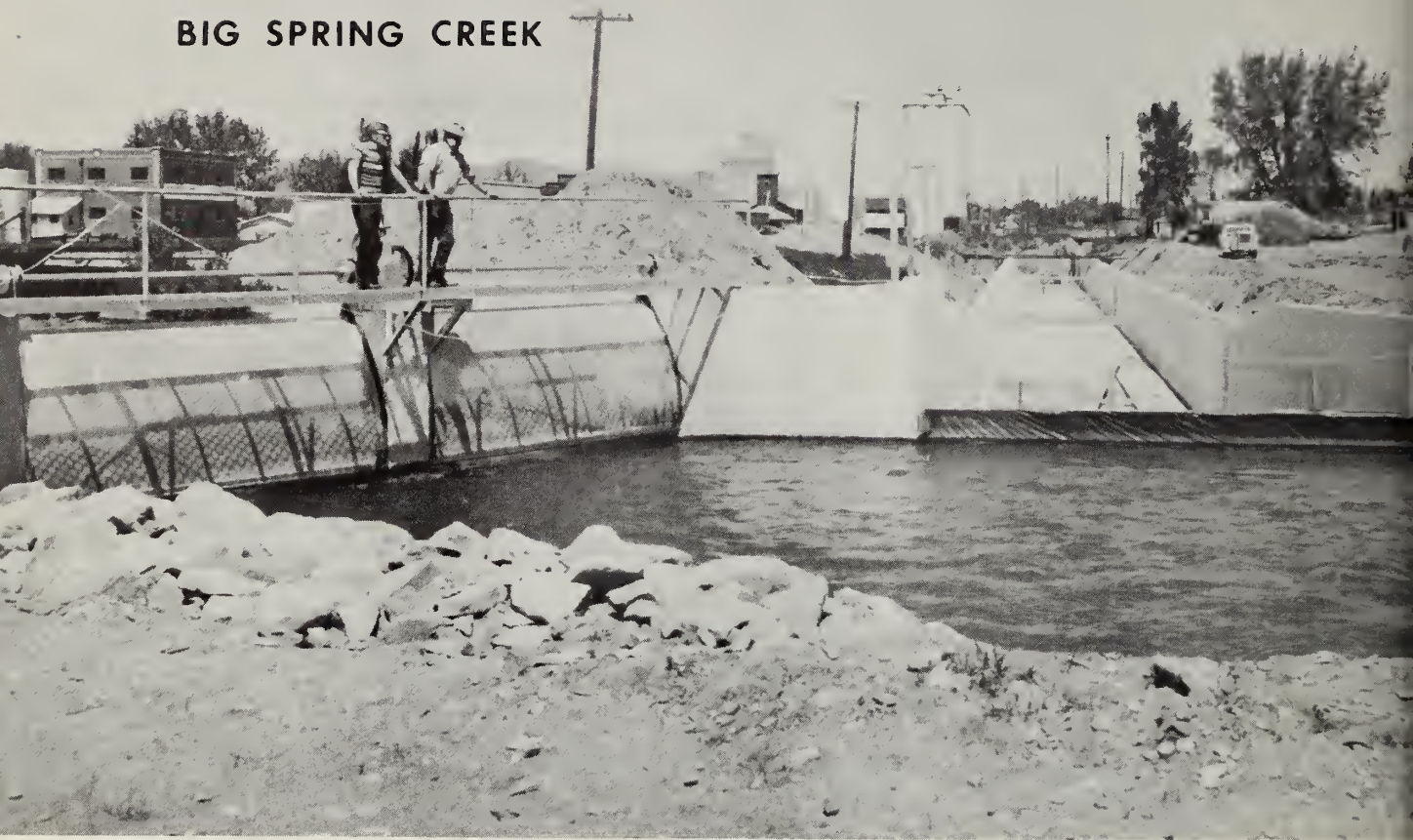
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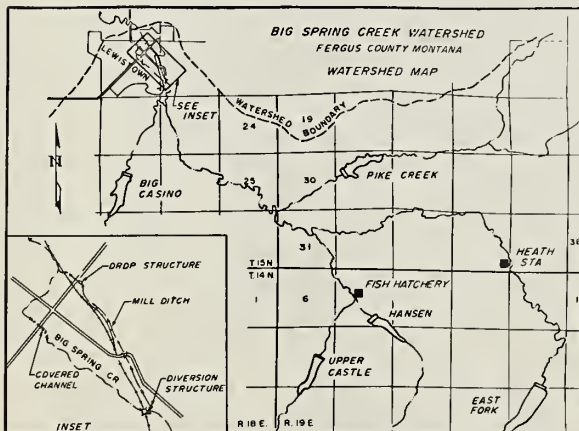
Unveiling plaque during dedication ceremonies of Cedar Creek Watershed held October 11, 1972. PHOTO BY MEL RUDER

BIG SPRING CREEK



SCS PHOTO MT-P871-3

Renovation and enlargement of the Mill Diversion Channel in Lewistown is nearly complete. The diversion structure and channel were constructed in three sections.



Construction of five upstream reservoirs will complete the Big Spring Creek project. The City of Lewistown has awarded the contract for the Hanson Creek dam and advertised for bids on the East Fork dam. The East Fork reservoir will provide flood prevention storage and a 112-acre permanent water area for fishing and boating. The land next to the reservoir will be developed for recreational use. Hanson and Castle Creek reservoirs will also store water to further enhance water-based recreation opportunities in the area.

BEAVER CREEK



SCS PHOTO MT-P1001-14

Construction of the multipurpose reservoir began in 1972. The reservoir will provide flood prevention and water for irrigation as well as water for fish and wildlife and a permanent recreation pool of 117 acres. Recreation facilities will be built near the reservoir.



Contractors test tractor roll bars to be sure they meet safety requirements.

SCS PHOTO

MT-P1042-12

Summary

Watershed Status and Scope

The status and scope of small watershed plans and projects in Montana are displayed in the table on the following page. Projects completed or under construction represent a total investment of \$12,158,590, of which \$7,968,330 was provided by PL-566 funds. Projects in planning stages total \$6,754,030, of which \$3,971,710 are PL-566 funds. Although more than half the costs of these projects is borne by PL-566 funds, the record indicates local people are willing to invest large sums of their own money to protect and conserve these resources. Watershed projects mold together many viewpoints to solve related land and water resource problems. These watershed projects strengthen community development in Montana and create a better environment.

TABLE 1

STATUS AND SCOPE
PL-566 WATERSHED PLANS IN MONTANA

DECEMBER 1972

	Construction		Project Installation and Land Rights		Land Treatment		Total Project	
	PL-566	Other	PL-566	Other	PL-566	Other	PL-566	Other
CONSTRUCTED Lower Willow Box Elder Jawbone City of Shelby Cedar Creek Sidney Water Users Subtotal	188,700	289,200	64,440	36,000	38,270	172,490	291,410	497,690
	241,200	29,600	74,320	26,190	---	47,700	315,520	103,490
	54,450	---	14,460	5,800	---	---	68,910	5,800
	278,260	69,120	140,830	23,330	---	6,640	419,090	99,090
	360,810	83,550	235,190	45,910	---	38,460	596,000	167,920
	633,480	626,240	372,500	42,620	23,370	280,270	1,029,350	949,130
	1,756,900	1,097,710	901,740	179,850	61,640	545,560	2,720,280	1,823,120
UNDER CONSTRUCTION Beaver Creek Big Spring Creek Newlan Creek Subtotal	811,580	327,480	326,480	65,880	15,000	193,760	1,153,060	587,120
	2,023,750	115,130	694,550	140,830	12,000	121,100	2,730,300	377,060
	807,020	635,770	469,550	173,650	88,120	593,540	1,364,690	1,402,960
	3,642,350	1,078,380	1,490,580	380,360	115,120	908,400	5,248,050	2,367,140
PLANNED Carbon Hill Baker Lake City of Browning Whitehall Subtotal	1,079,210	304,290	415,800	219,570	10,000	89,800	1,505,010	613,660
	191,500	---	33,870	37,030	---	11,340	225,370	48,370
	268,100	---	55,500	85,100	---	4,100	369,100	89,200
	50,000	50,000	30,000	13,000	18,350	135,930	98,350	198,930
	1,588,810	354,290	535,170	354,700	28,350	241,170	2,197,830	950,160
PLANNING UNDERWAY Boulder River Whitefish Lake Subtotal	949,900	950,100	667,500	177,500	100,000	400,000	1,717,400	1,527,600
	32,400	42,900	21,080	2,750	3,000	258,910	56,480	304,560
	982,300	993,000	688,580	180,250	103,000	658,910	1,773,880	1,832,160
PLANNING INACTIVE Hysham Bench Valley Creek TOTALS								
	7,970,360	3,523,380	3,616,070	1,095,160	308,110	2,354,040	11,940,040	6,972,580

Experiences in hundreds of localities demonstrate that multiple purpose small watershed projects are effective means of dealing with land use and water resource problems, of improving the quality of life in both rural and urban America, and of balancing our future national growth.



Field Examinations

Application Approved and
Planning AuthorizedDetailed Studies
Work Plan PreparedWork Plan Approved and
Operation Authorized

Engineering Designs



Construction



Application Prepared



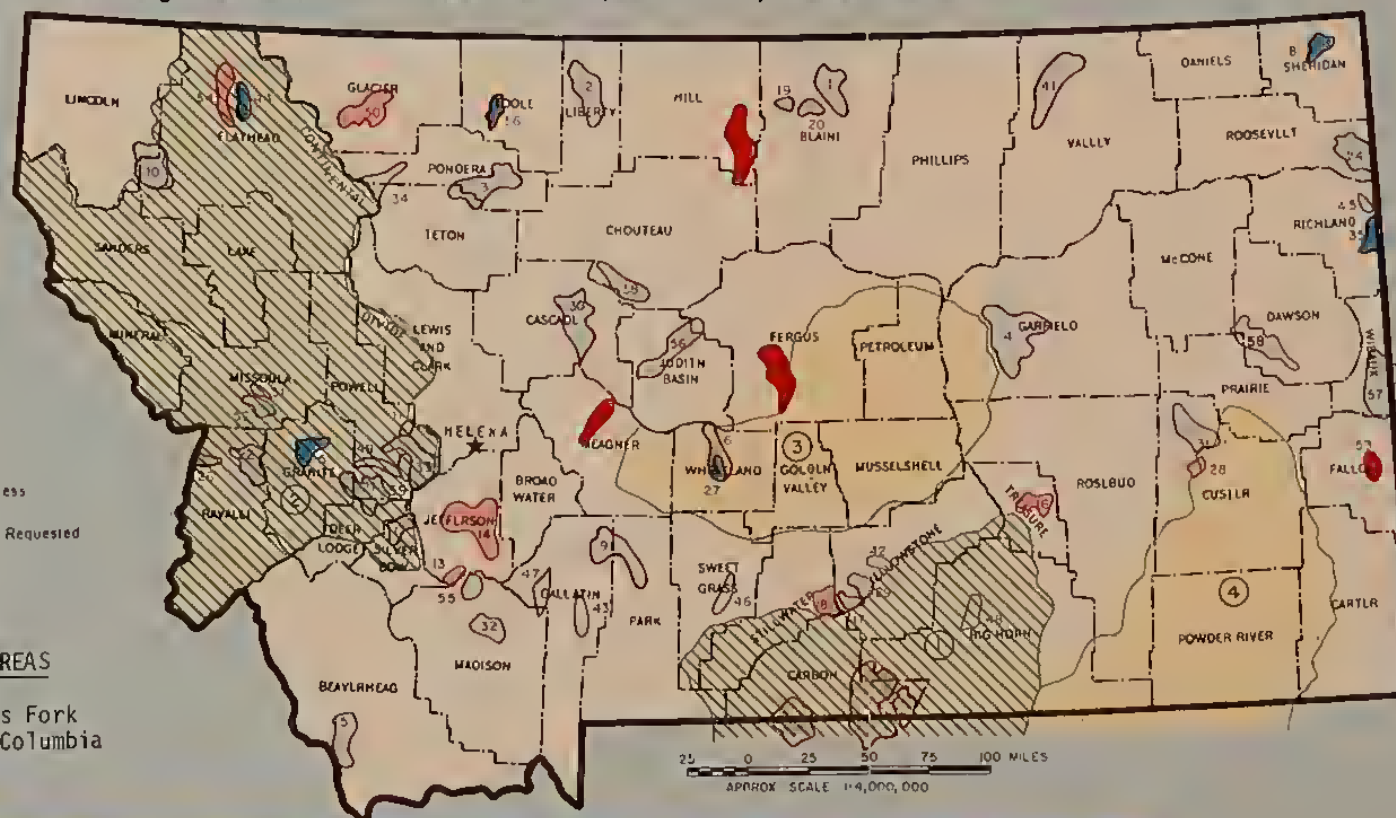
Construction Complete

LEGEND

	Application Approved
	Planning Authorized
	Operations Authorized
	Construction Complete
	River Basin Study in Progress
	Other River Basin Studies Requested
	Wyoming Watershed

TYPE 4 RIVER BASIN AREAS

1. Wind-Bighorn-Clarks Fork
2. Clark Fork of the Columbia
3. Musselshell
4. Tongue-Powder



NO	WATERSHED	COUNTY	ACRES	NO	WATERSHED	COUNTY	ACRES	NO	WATERSHED	COUNTY	ACRES
1.	Browns Gulch	Silver Bow	50,000	22.	Burnt Fork	Pavall	46,600	43.	Bozeman Creek	Gallatin	133,000
2.	Cottonwood Creek	Liberty	134,000	23.	Crooked Creek	Carbon	93,800	44.	Cedar Creek	Flathead	17,813
3.	Pondora Creek	Pondora & Teton	105,000	24.	Shoign Creek	Rosevelt	154,000	45.	First Bay Creek	Richland	157,130
4.	Upper Big Dry	Garfield	220,000	25.	Cyclone Bar	Carbon	119,400	46.	Lower Deer Creek	Sweet Grass	50,485
5.	Lower Willow Creek	Granite	71,200	26.	Bear Creek	Pavall	75,060	47.	Camp Creek	Gallatin & Madison	52,544
6.	Antelope Creek	Wheatland	91,300	27.	Jawbone Creek	Wheatland	6,000	48.	Two Legless Lane	Big Horn	151,040
7.	Thirly Hill	Blaine	114,000	28.	Carbon Hill	Custer	5,950	49.	Tin Cup Joe Creek	Powell	173,085
8.	Boy Lido Creek	Sheridan	14,285	29.	Cove Creek	Telluride	27,000	50.	City of Browning	Glacier	27,085
9.	Flathead Creek	Gallatin & Park	87,000	30.	Sand Coulee	Cascade	130,000	51.	Miller Creek	Missoula	26,800
10.	Pleasant Valley	Flathead	129,300	31.	Flinty Flats	Custer	50,000	52.	Palmer Creek	Missoula	10,240
11.	Three Mile	Powell	14,000	32.	Meadow Creek	Madison	48,000	53.	Baker Lake	Flathead	4,128
12.	Sage Creek-Pryor Mountain	Carbon & Big Horn	244,300	33.	Little Blackfoot	Powell	100,000	54.	Whitefish Lake	Madison	101,920
13.	Whitehall	Jefferson	10,200	34.	Blanch Creek	Pondora & Teton	15,400	55.	South Boulder	Judith Basin & Fergus	17,000
14.	Boulder River	Beaverhead	227,000	35.	Sidney Water Users Assoc.	Richland	3,460	56.	North-Coyote Creeks	Wibaux	158,000
15.	Medicine Lodge Creek	Beaverhead	109,000	36.	City of Shelby	Liberty	75,000	57.	Beaver Creek	Beacon, McCone, & Prairie	236,000
16.	Hyman Bench	Telluride	7,060	37.	Beaver Creek	Hill	142,700	58.	Lear Creek	Powell	57,008
17.	Park City-Laurel	Stillwater	29,000	38.	Highwood	Chouteau	96,000				
18.	Valley Creek	Stillwater	56,000	39.	Big Spring Creek	Fergus	51,504				
19.	Furn Bellnap	Blaine	9,000	40.	Newman Creek	Magnolia	211,000				
20.	Paradise	Deer Lodge, Powell, & Granite	11,500	41.	Willow Creek	Valley	27,260				
21.	Patricia Creek		55,700	42.	Altair Creek	Telluride					

PL-566
WATERSHED
AND TYPE 4 RIVER BASIN
PROGRESS MAP

MONTANA
JANUARY 1973





FOR
FURTHER INFORMATION
WRITE TO:

Soil Conservation Service
P.O. Box 970
Bozeman, Montana
59715

